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Telecommunications

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Telecommunications

JPRS-TTP-89-009

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Post, Telecommunications Return to Normal
HK2006130089 Beijing ZHONGGUO XINWEN SHE
in Chinese 1225 GMT 19 Jun 89

["China's Post and Telecommunications Have Returned to Normal"—ZHONGGUO XINWEN SHE headline]

[Text] Beijing, 19 Jun (ZHONGGUO XINWEN SHE)—Parts of China's post and telecommunications which were disconnected have basically returned to normal. According to the sources provided by the Post and Telecommunications Bureau, between the 3d and 7th of June in Beijing Municipal Post and Telecommunications Bureau alone, there were over 100 carriage cars of newspapers. On 6 June over 20,000 bags of mail were stacked on the ground of the train mail transfer site of Shanghai's Xinke Railway Station.

Between the 3d and 7th of June, tens of thousands of mail bags piled up in the Beijing Municipal Post Bureau, which has direct mail links with over 100 countries and regions across the world. After this period, through efforts by the post and telecommunications staff members, in 3 days all of the mail was cleared and delivered. Beginning from 10 June the mail has returned to normal.

After the 3d of June long-distance telephone calls and cable transactions in major cities across the country increased abruptly, overloading the operating capacity of telecommunications facilities, and telephone connection rates dropped drastically. Post and telecommunications departments in localities have adopted active measures to overcome the difficulties to ensure smooth home and international communication.

TAIWAN

**World's Largest Capacity Long-Distance Paging
Network**

55002471 Helsinki *HELSINGIN SANOMAT* in Finnish
27 Jun 89 p 26

[Text] The electronics firm Tecnomen of Espoo [Finland] is constructing the world's largest capacity long-distance paging network in Taiwan. The total value of the contract is about 45 billion markkas. The system is to be built together with the Swedish firm Ericsson, which will be responsible for the transmitter. Commercial operation of the system is to start in the summer of 1990. Similar networks by Tecnomen are operating in Finland, Sweden, Switzerland, Austria, Japan, and Iceland.

HUNGARY

State of Hungarian Telecommunications Development Reviewed

24020024 Prague PTT REVUE in Czech Mar-Apr 89
pp 44-47

[Article by Boris Kubin, ScC, Communications Research Institute, Prague: "Current Developments in Hungarian Telecommunications"]

[Text] For Czechoslovak communications specialists, a visit in the Hungarian People's Republic may become a source of information, especially because the Hungarian administration of communications holds the leading position among socialist countries in introducing new telecommunications services. Moreover, Hungarian ideas about overcoming the underdevelopment of the telephone network are also interesting.

The Situation of Standard Telecommunications Services

The primary and most far-reaching task of Hungarian telecommunications calls for improvement of telephone services and above all, for overcoming their underdevelopment. The density of 17 main telephone stations per 100 residents (the situation as of early 1988) has not come even midway the European average, and on the scale of the socialist countries, it ranks behind the CSSR, GDR and the Bulgarian People's Republic.

Part of main telephone stations are still connected with manual exchanges¹; some of them are still in the local battery system (see Table 1). The number of main

telephone stations is increasing annually by approximately 50,000. The number of pending applications for the installation of a telephone line amounts to almost 500,000. Part of long-distance telephone operations (toll and international calls) come from subscribers connected to manual exchanges (see Table 2).

Subscribers to telecommunication services in Budapest have certain advantages over those who live in the rest of the country (in the Hungarian language, they are called country "videki"). Thus, for example, at the beginning of 1987, 91.1 percent Budapestians had access to long-distance telephone connection, as compared with only 72.1 percent outside Budapest. With its 2 million residents, Budapest had 49 percent of all telephone stations and the rest of Hungary (8.6 million citizens) 51 percent.

The wire and teletype network is part of the Hungarian integrated teletype and data network; 949 teletype machines in 316 pooling telegraph stations were added to it in the beginning of 1987. In 1986, 12,365,968 telegrams were dispatched and 4,891,354 of them were delivered on ornamental blanks.

At the beginning of 1987, the teletype network (fully automated) included 11,500 subscriber stations; requests for the installation of teletype stations were equal to about 10 percent of the already operating ones. Since the NEDIX 510 integrated teletype and data exchange (supplied by the Japanese NEC Company) began to operate in Budapest, subscribers to telex could participate in automatic international connections with 166 countries in the world.

Table 1. Development of the Number of Connected Main Telephone Stations in the Hungarian People's Republic

Year	With automatic exchange	UB	MB	Total	Percent of connections with automatic exchange
1981	556,626	46,826	33,173	636,625	87.4
1983	597,395	46,614	32,375	676,384	88.3
1985	661,546	47,067	30,187	738,800	89.5
1987	739,834	45,100	27,808	812,748	91.0

Strategy for Development²

Approximately 17,000 persons are employed by the Hungarian telecommunications base. The volume of capital assets of telecommunications amounts to Forint 42 billion (the rate of exchange is approximately 2 Ft = Kcs 1), most of them in the telephone network. In addition to about 1.5 million service lines of the master telephone station, there are 2,150 exchanges (state) and 13,000 extension lines. Private telephones represent 34 percent, those of organizations, enterprises and institutions 64 percent, and public telephones 2 percent. About

5 percent of the telephones in 1,800 Hungarian villages are serviced by operators; only essential lines have continuous overnight connections.

A major obstacle to the extension of the telephone network is the shortage of terminal capacities and obsolete telephone exchanges. Thus, for instance, 45 percent telephone exchanges with the rotary system are nearing their phase-out. Hungary launched its production of communications systems of the second generation (BHG) relatively late, in 1980, and the training of additional specialists in this technology is plagued with problems.

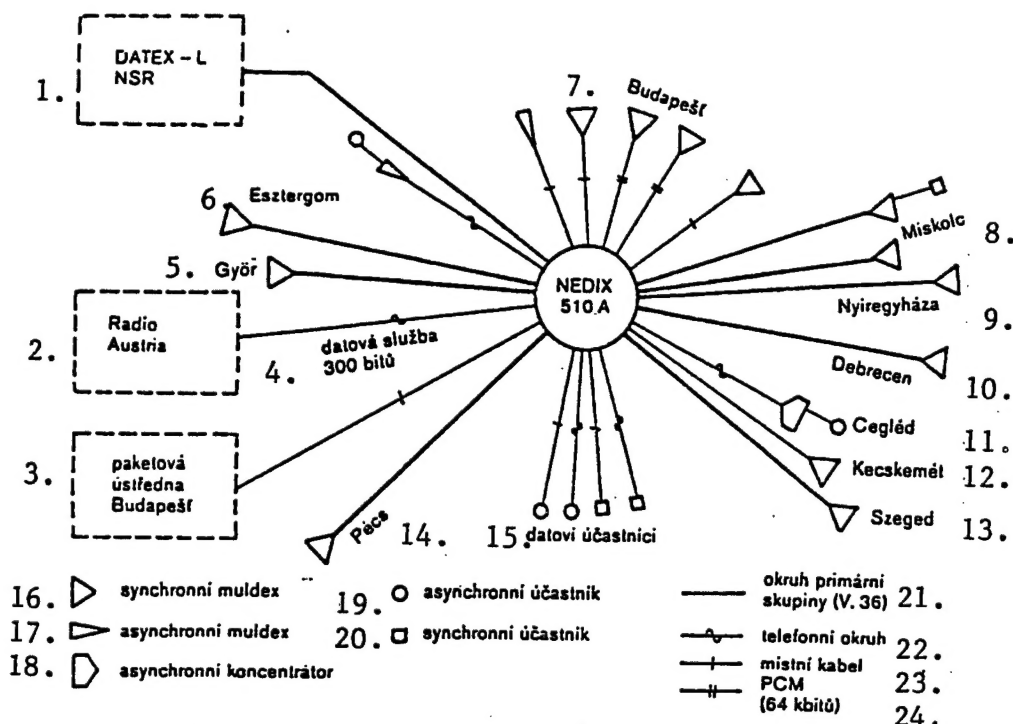


Figure 1. Configuration of Hungarian Public Data Network With Interfaced Circuit

Key: 1. DATEX-L FRG 2. Radio Austria 3. Budapest packet exchange 4. Data service 300 bits 5. [City of] Győr 6. Esztergom 7. Budapest 8. Miskolc 9. Nyiregyháza 10. Debrecen 11. Cegléd 12. Kecskemet 13. Szeged 14. Pécs 15. Data users 16. Synchronous muldex 17. Asynchronous muldex 18. Asynchronous concentrator 19. Asynchronous user 20. Synchronous user 21. Primary group circuit (V.36) 22. Telephone circuit 23. Local cable PCM (64 kbit/s) 24. (64 bits)

Table 2. Quantitative Data on Long-Distance (Toll and International) Telephone Traffic in the Hungarian People's Republic

	Volume of long-distance telephone operations in 1987		
	State-wide	International	Total
Manual operations (minutes)	168,801,041	6,853,612	175,654,653
Automatic operations (impulses)	1,347,458,843	849,928,772	2,197,387,615

Operating throughput of the Hungarian telephone network is low; at peak hours only 46 percent of calls get through (a "good" network should manage more than 60 percent).

For due development of Hungarian economy and for the satisfaction of all demands of that nation, 1.2 million telephone stations should be installed, which together with radical revamping of the telephone network would require investments of Ft 120 billion. In the year 2000 the density should amount to 30.7 stations per 100 citizens. However, the planners consider options with 33

and 41 stations per 100 citizens. However, the planners consider options with 33 and 41 stations per 100 citizens. In 2010 the density should approach its point of saturation with about 75 telephone stations per 100 citizens (current telephone density of Denmark).

Long-range plans estimate the procurement cost of every telephone line at Ft 86,300. The Hungarian telecommunications industry cannot fully renovate and expand the Hungarian telephone network. Necessary imports of equipment cannot be covered by tolerable increases of charges for telecommunications or—in view of the current situation of Hungarian economy—by state subsidies. As the most feasible options are regarded grants of credits from the World Bank—not for direct procurement of the equipment, but rather for manufacturing licences and cooperation.

Sensitive problems concerning the construction and operation of telecommunication systems outside Budapest may be resolved by deregulation, i.e., abolition of monopoly controls. The administration of communications would then limit its tasks to oversight of the compliance with the regulations of cooperation between systems made by different manufacturers. It is envisaged that advantageous conditions for an influx of funds may be created by self-financing in the user sphere.⁴

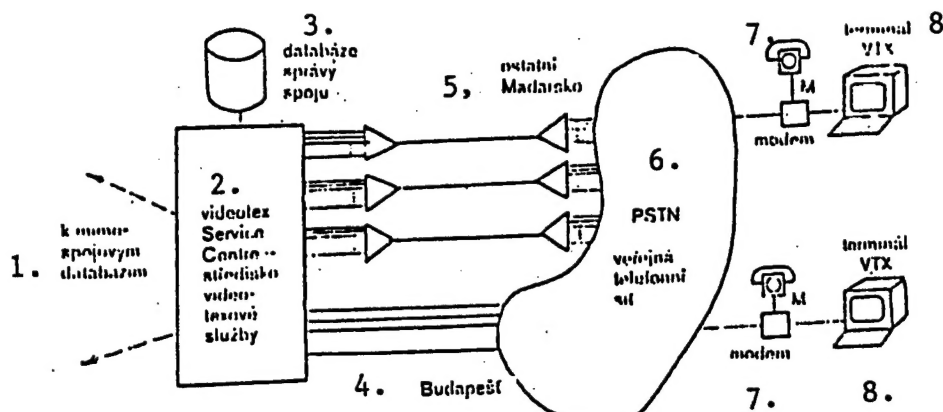


Figure 2. Configuration of Interactive Videotex Services in the Hungarian People's Republic

Key: 1.To non-communications database 2. Videotex Service Center 3.Database of the communications administration 4. Budapest 5.The rest of Hungary 6.PSTN - public telephone network 7.Modem 8.VTX terminal

Concepts for Introduction of New Telecommunications Services

Instead of a big lump, which the reconstruction of the telephone network would be, the Hungarian administration of telecommunications does not hesitate to create good opportunities by dealing with "little bits" in the form of improved services of data telecommunications and introduction of new telecommunications services. It argues skillfully and—as it appears—successfully that these services produce immediate benefits not only for the development of national economy but also for the satisfaction of public demands for information, demonstrated, among other things, by steady inroads of personal computers in the Hungarian market.

A practical new method has demonstrated that before the introduction of new services in Hungary it is worthwhile to organize a kind of a prelude in the form of an experimental stage. It proceeds from the awareness that users clamor for extension of new services only after they

have gained first-hand experience with them—for example, by participating in an experiment, and furthermore, that the experiment may outline the correct way during the introduction proper of services or definite design of the network.

When dealing with fundamental issues of the development of telecommunications, the Hungarian administration of communications proceeds from the data of its telecommunications research. For that purpose, Scientific Days organized by the Hungarian Research Institute for Communications (PKI - Posta kiserleti intezet) were perfectly timed; their topics included telecommunications, national economy and society³ with foreign participants (Bulgaria, Finland, France, FRG, USSR, Sweden, Switzerland and Great Britain). Also, international symposia on new services of data communications were organized jointly by the UN Development Program (UNDP), Hungarian Post (the title of the administration of communications of the Hungarian People's Republic) and the international telecommunications union. They were held from 12 to 22 April 1988.

Table 3. User Class of Services in the Hungarian Public Data Network With Packet Switching

User class	Data signaling rate and format of symbols		bit/s	Control signals; format of symbols codes	
1	300	11 a*	300	11 a	MA 5
2	110	11 a	110	11 a	MA 5
3	200	11 a	200	11 a	MA 5
4	2400		2400		MA 5
5	4800		4800		MA 5

* a = unit interval

These actions signal the breakthrough after a long isolation from countries with advanced telecommunications. We should add the preparations by the Hungarian administration of communications for its entry in the

European Commission for Posts and Telecommunications (CEPT), in which West European administrations of communications are associated for the purpose of dealing with matters of cooperation in the area of

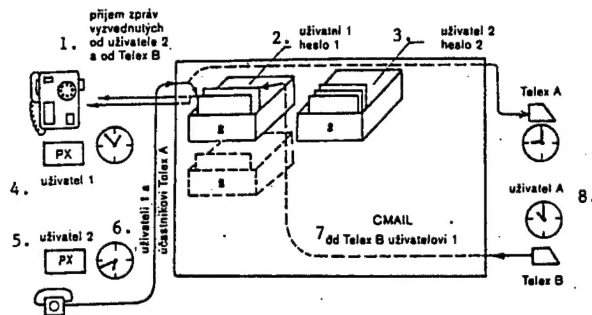


Figure 6. Principle of Information Exchange by Means of C-MAIL System—Plot of Memory Storage and an Example of Transmission of Information From User 2 to User 1 and to Teletype Subscriber Telex A; Furthermore, Transmission of Information by Teletype Subscribers Telex B to user 1.

Key: 1.Reception of information collected from user 2 and from Telex B 2.User 1, Password 1 3.User 2, Password 2 4.User 1 5.User 2 6.To user 1 and Telex A subscriber 7.C-MAIL from Telex B to user 1 8.User A

telecommunications (among other things, also with the most advantageous application of individual recommendations of the CCITT in the conditions of Europe).

Public Data Networks in the Hungarian People's Republic

Its basis consists of a public data network with circuit switching (commutation VDS) with a single exchange in Budapest and with a muldex system (muldex is multiplexor and demultiplexor) which form in one fast digital circuit a greater number of digital circuits at a slower speed (or lower rate) and one asynchronous concentrator (next to the multidex function, it also takes over some functions of the exchange), see Figure 1. The system which serves also the telex and public telegraph has been in operation since 1981. A public data network with packet switching (packet VDS) is scheduled to begin operation in 1990 or 1991 and then both networks will be interfaced. The network has access to the FRG and Austria.

Table 3 presents a scheme of user categories made by the commutation public data network. Subscribers (owners of connected terminal data equipment, i.e., computers and terminals) are offered the following users' options: direct calls (no dialing); closed user group; closed user group with outgoing access; with barred outgoing calls; identification of the calling line; barred incoming calls; failure logging of inactive terminal data equipment, and search for free line (for extension group).

The NEDIX 50 communications system is based on the principle of addressed transmission of patterns through memory, which forms the switching network of the exchange. Transmission for asynchronous categories is transparent, i.e., it transmits a sufficient number of

patterns of bistable digital signal for telegraphic distortions to remain within acceptable limits. Synchronous categories use a method which is nontransparent in terms of modulation rate, but which is compact in terms of the number of patterns per unit interval.

In 1990 the commutation VDS will be expanded by another exchange in Budapest (probably by Siemens Company) and by one outside Budapest. Long-range plants project a network with five exchanges.

Introduction of Videotex Service

Hungarian interactive videotex services began a test run in the building of the central telegraph office in Budapest. A view of its applied system is presented in Figure 2. This system permits telephone subscribers, who will be furnished with a special terminal (TVX), to communicate by means of the telephone network with the database of the administration of communications, in which various suppliers will provide information also by means of VTX terminals (Figure 3 [omitted]). In the future the system will be expanded with a database of non-interlinked organizations. Toll digital transmission is not made over the telephone network, but rather over a muldex system. In late 1988 about 120 subscribers had already installed this system.

Figure 4 [omitted] offers an example of allocation of optional user-specific graphic symbols, and Figure 5 [omitted] shows their application as illustrations in sections of railroad timetables.

System of Exchange of C-MAIL Information

The Hungarian administration of communications introduced on experimental basis a special information system whose principle is presented in Figure 6. The core of the system is the computer whose storage areas are allocated to individual subscribers. By means of his PX portable pocket terminal the user may store in them data entered with a password, so that another designated subscriber may retrieve them. The system includes also subscribers of the telex network.

Pocket terminal (Figure 7 [omitted]) is connected to any telephone by acoustical coupling. About 40 PX terminals have been thus far on loan to selected users involved in the experiment.

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INDIA

Continuity of INSAT Services Ensured

*BK2806163089 Delhi Domestic Service in English 1530
GMT 28 Jun 89*

[Text] The Department of Space is taking all necessary measures to ensure the continuity of INSAT services after the damage caused to the INSAT-1D spacecraft at the Kennedy Space Center on the 20th of this month. An official press release in New Delhi says the services of INSAT-1B, which will continue till October, may be extended further. Back up services will also be provided by INSAT-1C, which is operating partially. Discussions are also in progress with INTELSAT and ARABSAT for getting some of the C-band transponders on lease.

Meanwhile, a detailed assessment and repair of the damages to the INSAT-1D have been undertaken. The Ford Aerospace Corporation will carry out various tests by the end of next month after which a new date will be fixed for launching INSAT-1D.

Editorial Blames United States for Insat Failures

*BK0907095689 Delhi PATRIOT in English
24 Jun 89 p 4*

[Editorial: "Evil Star on Insats"]

[Text] Setbacks in scientific or technological work need not always be taken as failures. But the number of accidents vitiating the Insat programme raises questions about the nature of these mishaps. There may be doubts whether the "accidents" are not sabotage. While the

Government of India can do precious little now about the Insat-1D satellite, damaged while being hoisted onto a launch vehicle at Cape Canaveral in the US, it must search for plausible answers to the question why all the four satellites in the series have been delayed by one reason or another. Insat-1A, launched from the US in 1982, died a premature death only 147 days after the launch, even though its projected life was seven years. It ran into a series of snags. Its solar sail had to be replaced, its C-band antenna got jammed, the solar sail refused to open up, and finally it lost its earth lock, necessitating the satellite's deactivation. Insat-1C, placed in orbit by the French Ariane vehicle in July 1988, after the explosion of the US "Challenger" shuttle forced a change of plans, was made useless within just two days when it too curiously suffered the loss of earth lock because of short-circuit in one of the power bases. And on June 21, Insat-1D was damaged beyond repair by a dangling hook of a power-pulley while being hoisted onto the launch-rocket. The damage is being assessed, but prima facie the retrieval appears impossible. Only Insat-1B, put in orbit in October 1983, is operational, though snags have shortened its life considerably.

If all the four satellites were fully operational, they would have immensely enhanced India's telecommunications network and with specialised payloads like Very High Resolution Radiometre, helped agricultural operations with weather pictures. In a predominantly agrarian economy and a vast country like India, the satellites' importance is crucial for economic development. All the four satellites, it is to be noted, were manufactured by the Ford Aerospace, of the US. The least India should ask is full compensation for the losses the country has suffered.

EUROPEAN AFFAIRS

EC Council Issues Decision on HDTV

AN890177 Luxembourg OFFICIAL JOURNAL OF
THE EUROPEAN COMMUNITIES in English No
L142, 25 May 89 pp 1-2

[EC document: "Council Decision of 27 April 1989 on
High-Definition Television"]

[Text] The Council of the European Communities,

Having regard to the Treaty establishing the European
Economic Community, and in particular Article 235
thereof,

Having regard to the proposal from the Commission,

Having regard to the opinion of the European Parlia-
ment,

Having regard to the opinion of the Economic and Social
Committee,

Whereas high-definition television (HDTV) is of strate-
gic importance for the European consumer electronics
industry and for the European television and film indus-
tries;

Whereas a single world standard for the origination and
exchange of HDTV programmes and films is urgently
required;

Whereas European industry has developed, within the
EUREKA framework, a suitable proposal for such a
single world production standard;

Whereas prototype equipment built to this standard was
successfully demonstrated at the International Broad-
casting Convention in September 1988 at Brighton;

Whereas 1992 may be set as a target date for the launch
of commercial equipment on the market and the begin-
ning of operational HDTV services;

Whereas the success of the launch of commercial HDTV
will depend not only on the availability of appropriate
hardware but also on the European film and television
production industry achieving the necessary capability
and experience;

Whereas a substantial promotion campaign needs to be
launched immediately to prepare professional users and
the general television viewing public for such a launch;

Whereas relevant decision-makers and other concerned
parties should also be kept fully aware of developments
relating to European HDTV;

Whereas there is an urgent requirement to prepare a
strategy and action plan for the launch of Europe-wide
HDTV services;

Whereas it is of great importance that all Member States
participate in these activities;

Whereas these initiatives should lead to closer coopera-
tion at Community level between industry (the con-
sumer and professional electronics industry and the film
and television production industry) and service provid-
ers (terrestrial broadcasters, satellite television stations,
cable operators and cinema distributors);

Whereas the Treaty does not provide, for the action
concerned, powers other than those of Article 235,

Has decided as follows:

Article 1

The following objectives are hereby adopted as the basis
of a comprehensive strategy for the introduction of
high-definition television (HDTV) services in Europe:

Objective 1

To make every effort to ensure that the European indus-
try develops in time all the technology, components and
equipment required for the launching of HDTV services.

Objective 2

To promote the adoption of the European proposal
based on the 1,250 lines, 50 complete frames per second
progressive scanning parameters, as the single world
standard for the origination and exchange of HDTV
programme material.

Objective 3

To promote the widest use of the European HDTV
system throughout the world.

Objective 4

To promote the introduction, as soon as possible—and
in accordance with a suitable timetable from 1992—of
HDTV services in Europe.

Objective 5

To make every effort to ensure that the European film
and television production industry achieves the capabil-
ity, experience and dimension required to occupy a
competitive position on the HDTV world market and to
allow the Member States to make their own cultural
contribution.

Article 2

In order to attain the objectives referred to in Article 1, an action plan for the introduction of HDTV shall be prepared in close coordination at Community level between the Commission and the Member States, where appropriate through national mechanisms, in consultation, in particular, with:

- terrestrial broadcasters,
- satellite television broadcasters and distributors,
- cable operators,
- professional and consumer electronics equipment manufacturers,
- the television and film production industry,
- audiovisual and higher education technological institutes,
- consumer organizations,

throughout the Community, and throughout Europe as a whole, in close coordination on a complementary basis with the EUREKA HDTV project participants and coordinators.

Article 3

On the basis of the consultations referred to in Article 2 and on a proposal from the Commission, the Council shall examine an action plan for the introduction of HDTV services. This action plan should also include mechanisms allowing European third countries to participate.

Done at Luxembourg, 27 April 1989.

For the Council

The President J. Barrionuevo Pena

CANADA

Canadian Advisory Committee Issues ISDN Report

AN890175 *Chichester INTERNATIONAL
TELECOMMUNICATIONS INTELLIGENCE
in English 12 May 89 pp 1-2*

[Unattributed article: "ISDN Report for Canadian Authorities to Study"]

[Excerpt] The marketing of Integrated Services Digital Network (ISDN) terminal and network equipment as well as advanced services is undoubtedly becoming a lucrative business, as telecommunications carriers around the world continue to digitalise more and more of their basic network architectures. It is a matter of growing concern among telecom authorities as to how to control the market to avoid mass confusion, customer dissatisfaction, diversification of standards, the tyranny of monopolist suppliers, and the subsequent losers.

These issues have recently been addressed by the Communications Ministry of Canada, which proposes to seriously consider the issues and options outlined in an important new report based on the work of a Private Sector Advisory Committee on ISDN implementation in Canada. The ISDN report could prove a valuable resource to the Telecommunications Policy Framework for Canada, the group set up in July 1987 whose work will include giving direction to the whole range of policy and implementation issues relating to the advance of ISDN. The new report contains some key recommendations to be considered by telecom regulating bodies as ISDN technology filters through Canadian carrier's network systems.

Canada's Communications Minister Marcel Masse, in publicising the report earlier this month, called it "timely and appropriate." He said he was sure the conclusions and recommendations within it would be considered in depth by the Canadian telecommunications industry and its customers, as well as federal and provincial governments and agencies.

Focussing on narrowband (smaller or equal to 2,400 bit/s) ISDN, the report was written by the chairman of the Advisory Committee, John Lawrence.

Key issues covered by the report include:

National policy—It is recommended that, in order to achieve the competition objectives for the implementation of ISDN set out in the Telecommunications Policy Framework for Canada, mechanisms should be found at the federal and provincial levels to enable ISDN to be implemented on the basis of national standards and policy.

National standards—Canadian ISDN standards should be designed to accommodate the needs of the Canadian telecommunications system and to meet North American and international requirements, based on the recommendations of the International Telegraph and Telephone Consultative Committee (CCITT), which is part of the International Telecommunications Union (ITU).

A national voluntary conformance testing facility is required to assist Canadian equipment suppliers and manufacturers in the development and manufacture of ISDN equipment that is competitive both domestically and internationally.

Disclosure of the carrier's network plans on a timely basis is required to enable the fullest development of competition in an ISDN environment, particularly in connection with the competitive provision of terminal equipment and enhanced services. The nature, extent and timing of such disclosure should be determined by the regulatory authorities.

Competitive network interconnection—ISDN should be implemented in a manner that permits the maintenance of the level of competitive network and services interconnection that presently exists and enables the introduction of further network and services competition, should it be authorised in the future.

Competitive terminal equipment provisioning—Customers should have the choice of owning the ISDN terminal access known as the NTI on their premises.

The commercial introduction of ISDN services in Canada should be based on customer access technology founded on national user-network interface standards.

Enhanced services—The provision of enhanced services on a competitive basis should be given ongoing attention within the framework of the regulatory process as ISDN evolves. This will ensure that enhanced service providers are able to supply existing and future enhanced services offering ease, efficiency and access to underlying services and facilities comparable to that available to the carriers themselves.

Copies of the Advisory Committee's report are available to interested parties from Information Services, Department of Communications, 300 Slater Street, Ottawa, Ontario, K1A 0C8.

Nortel Aims Small Business Phone System at Pacific Rim

[Article by Geoffrey Rowan: "NorTel Takes on Pacific Rim Rivals"]

55200041 Toronto THE GLOBE AND MAIL in English
9 Jun 89 p B15

[Text] Northern Telecom Ltd. has stepped up its assault on the Pacific Rim in the battle for dominance of the market for small business telephone systems.

The company, based in Mississauga, announced yesterday the commercial availability of a business telephone system with an array of features for as many as 128 telephones and lines.

The new system has been available to some of Northern Telecom's telephone company clients.

Northern Telecom has not been a major player in the market for small business phone systems, generally defined as those with from two to 100 phone sets.

The market, which produced worldwide revenue last year of about \$4-billion, is crowded, with about 200 competitive products, most of them produced in Pacific Rim nations where wages are low.

"Our objective is to be a major player and within the next five years to have a dominant share of the market," said Richard Reid, director of marketing for the Calgary-based business products division of Northern Telecom.

He said that means controlling more than 7 percent of the global market, or more than twice its current share.

The system unveiled yesterday, called Meridien Norstar Modular, has technology that allows rapidly growing small companies to expand it by adding modules.

It is designed as a bridge for small companies moving from needing only a few telephone lines to requiring their own private branch exchange.

The first Norstar system, called the Compact, was introduced 14 months ago and Mr Reid said it is now the dominant small business system in Canada.

The new system's intelligence is based on seven silicon chips and it is programmed with software cartridges. It offers the usual variety of speed-dialling and call-forwarding features, made easier to perform by prompts on a two-line display, but can also store names and phone numbers for redialling.

Up to 4,400 names and numbers can be stored in an electronic directory created on a personal computer. The company said the system, which costs between \$550 and \$650 a station, interfaces with IBM-compatible personal computers.

Cathy Allison, a senior consultant with telecommunications consulting firm Transition Group Inc. of Toronto, said the new system is "really state of the art because it's the only system out there that you can plug cartridges into and customize applications."

She said there are no other small business telephone systems, including those by Rolm Corp. of Santa Clara, Calif., and Mitel Corp. of Kanata, Ont., that have technology as sophisticated as Norstar's.

Aeronautical Telecommunications System Agreement Signed

55200039 Toronto THE TORONTO STAR in English
31 May 89 p D3

[Text] Montreal (CP)—Passengers will be able to phone anywhere in the world from an airplane once a new aeronautical telecommunications system is fully implemented.

The system, Aeronautical Mobile Satellite Services, is to be put in place gradually beginning next year.

Backers said yesterday that within a few years all airlines except for small regional carriers will be using it.

The service will make civil aviation safer by improving aircraft-ground communications worldwide, say the Canadian, Australian and French companies that developed the system.

And passengers will eventually be able to link laptop computers with databases and electronic mail networks.

"It will improve communications between pilots and air traffic controllers and allow the business traveller to stay in touch," federal Communications Minister Marcel Masse said at the signing of a multilateral agreement for the introduction of the service.

Tele globe Canada, France Telecom, Australia's OTC Limited and SITA, an international co-operative of 355 airlines that specializes in airline industry telecommunications, invested a total of \$60 million (U.S.) to develop the system.

SITA, headquartered in Paris, will oversee operation of the satellite service from offices in Montreal.

Claude Lalanne, SITA's director general, said passengers can probably expect to pay from \$8 to \$10 (U.S.) per minute to telephone from an airplane to anywhere in the world. The exact charge will be up to individual airlines, he said.

Passengers can telephone from airplanes now, but only over parts of North America and Japan.

Dr. Assad Kotaite, president of the International Civil Aviation Organization, said the new system will make flying safer.

"The position of the aircraft will be much more precise, and the communication with the aircraft will be much better than now. This is why we think it will enhance further the safety of international civil aviation."

It will cost airlines up to \$400,000 per plane to install the necessary electronic equipment, but Lalanne said that is relatively inexpensive.

"I don't think any airline would decide not to buy it" because of the expense, he said.

"The cost of the specialized equipment to be installed on the plane is relatively minor compared to the cost of an aircraft."

Hearings Begin on Maclean Hunter Takeover of Selkirk

55200038 Toronto *THE TORONTO STAR* in English
29 May 89 p C1

[Text] Hull, Que. (CP)—Examination of the biggest, most complex takeover in Canadian broadcasting history starts today as Maclean Hunter Ltd. explains to the federal broadcast regulator why it should be allowed to buy Selkirk Communications Inc.

The public hearing before the Canadian Radio-television and Telecommunications Commission is expected to last a week.

Maclean Hunter bought out Selkirk last fall in a \$606 million transaction involving 16 radio stations, four television stations and two cable television stations plus other assets.

The two Toronto-based companies will have to prove to the commission that the deal will provide tangible benefits to the Canadian broadcasting system.

And the commission will want to be satisfied that it won't hurt the system through concentration of ownership and cross-media ownership, said CRTC analyst Ray Moschuk.

The CRTC will also want to know how Maclean Hunter set the value of the radio and television stations it plans to sell immediately to three other companies in deals worth \$310.5 million, Moschuk said.

The commission doesn't look kindly on fast and profitable resales without sufficient investment in new programming and capital improvements.

A Peat Marwick report, commissioned by the CRTC, estimated Maclean Hunter would make between \$14.6 million and \$36.6 million in profit on the takeover and resale.

Maclean Hunter originally planned to keep as many of the stations as the CRTC would allow but subsequently struck deals with three other companies to sell most of the outlets.

WIC Western International Communications Ltd. of Vancouver wants to pay \$217.5 million to Maclean Hunter for four TV and radio stations in Alberta plus Selkirk's stake in British Columbia Broadcasting Co.

WIC, which already owns the balance of British Columbia Broadcasting shares, has promised to inject \$25 million into the stations if the CRTC allows the deal to go ahead.

Rogers Communications Inc. of Toronto has pledged \$3.2 million in tangible improvements to 11 other radio stations in B.C. and Alberta it wants to buy for \$24.5 million.

And Blackburn Group Inc. of London, Ont., has promised to spend \$8.2 million on programming and technical improvements if it is allowed to buy CHCH-TV, an independent station in Hamilton, for \$68.5 million.

Maclean Hunter itself says it will spend \$36.7 million on over-all benefits to the broadcasting system and improvements to the Selkirk properties it wants to keep.

Some of the over-all benefits it promises are \$8 million to set up a Canadian television drama development fund, \$2.25 million to subsidize decoders for hearing impaired television viewers and \$500,000 for a children's broadcast institute trust fund.

Cross-media ownership will be an issue for properties changing hands in Ottawa, Toronto and Calgary, Moschuk said. Maclean Hunter owns Toronto Sun Publishing Corp., which operates newspapers in those cities, including the Financial Post, plus other broadcast outlets.

DENMARK

Telecommunications Monopoly Ended in Advance of EC Unity

55002469 Copenhagen BERLINGSKE TIDENDE
in Danish 17 Jun 89 Sec 2 p 3

[Article by Henrik Damm; first paragraph is BERLINGSKE TIDENDE introduction]

[Text] Communications Minister Torben Rechendorff (Conservative) has had to give in to the EC's demands. Telephone manager Per Ammitzboll of the Copenhagen Telephone Company [KTAS] is happy to have a final date for decontrol, which has been moved up to next summer.

Years of uncertainty in the business sector, telephone companies, telemanufacturing companies and in political relations between the Danish traffic and communications minister and the EC Commission's General Directorate 13 are finally over.

The Communications Minister has had to yield in the dispute with the EC Commission.

This means that the first telephones, private exchange systems, and networks will be decontrolled as early as 1 July next year and not starting 1 January 1992, as planned.

KTAS telephone manager Per Ammitzboll reacted to the decision favorably.

"Now at least we have a firm date to work toward so we can adjust to the increased competition we must anticipate," Per Ammitzboll said.

Competition

And the competition that may arise will come from a group of firms under the National Electricians Union [ELFO], a number of electricians who have announced the opening of 25 new telecommunications stores starting on 1 November.

The new director of the enterprise is former KTAS marketing chief Poul-Erik Nielsen, so he knows the competition from the inside.

Per Ammitzboll is not too worried about the new competitive situation, although Tele-Punkt has reached an agreement with the Swedish Telecommunications Administration on supplying fax machines. But he still thinks the bottom line will be that Danish customers, private as well as business, will rate the ability to deliver and quality higher than bargains.

The accelerated liberalization means that the first pieces of equipment plus installation and private automatic exchange systems, the so-called PACB's, will be decontrolled. Extra equipment will be decontrolled as early as 1 November.

Not Enough

The telecommunications and postal chairman of the Business Transport Committee, ETU, John Sander Nielsen, who represents the big business customers, considers it a positive sign that the signals from the minister have now changed. But at the same time he questions whether it is enough to move the date ahead.

"Realistically one has to say it is the best compromise that could be achieved," said John Sander Nielsen, who is employed by one of Denmark's biggest data processing centers, the Agricultural Data Processing Center, LEC.

FEDERAL REPUBLIC OF GERMANY

Bundespost Acquires Satellite Capability

36200185b Frankfurt/Main FRANKFURTER
ALLGEMEINE in German 7 Jun 89 p 6

[Article by Ulrich Schulze: "Kopernikus Changes Previous Policy Intentions. The Bundespost's First Satellite. Costs and Mission"]

[Text] Frankfurt, 6 Jun—Since Tuesday the Bundespost has had its own satellite capacity. In a few weeks it will give up five channels on the Intelsat V telecommunications satellite and transfer the television channels carried on those (Bayern 3, West 3, ARD-1-Plus, Pro 7, and Tele 5) to its first satellite of its own, Kopernikus; after several

postponements for technical reasons, the 1.4-ton Kopernikus was launched into space early Tuesday morning along with the Japanese Superbird satellite by the Ariane 44L launcher from the Kourou space center in French Guyana. The launch and flight went perfectly and the powerful solar generators unfolded according to plan. The Bundespost and Arianespace expressed their satisfaction.

The Bundespost will use Kopernikus for a number of purposes: for telephone conversations, primarily to and from Berlin; for video conferencing; and for experimental work in telecommunications. However, to begin with, primarily the satellite will provide digital transmission of 5 television and 16 radio channels. This means that the new satellite has a different mission than originally planned: broadcasting. After the failure of its TV-Sat 1 broadcasting satellite in November 1987 (its solar panels did not unfold, which made it unusable) the Bundespost had first attempted to acquire capacity on the French TDF 1 sister satellite. Because these efforts were unsuccessful, the Kopernikus telecommunications satellite was outfitted as a "television satellite" to broadcast in the internationally protected frequency of 11.75-12.45 gigahertz. With a strength of 54 dB-watts, the broadcasts can, under certain circumstances, even be received by small private parabolic antennas with a diameter of around 80 centimeters. However, the Bundespost will definitely pick up the five channels transferred from Intelsat V at 30 earth stations and distribute them via cable distribution networks to an initial 5 million households.

Current launch plans call for the TV-Sat 2 broadcasting satellite to be put into orbit at the end of July. This satellite, broadcasting from which is intended solely for direct reception, is to transmit the private channels RTL-plus and Sat 1, plus the public channels 3-Sat and—if it seems desirable—ARD-1-Plus; the fifth channel was supposed to be kept open for a television channel and to be used for digital radio between 1:00 am and 6:00 pm. According to the Bundespost's altered plans, these 16 radio channels will now be transmitted via the new Kopernikus television satellite, because that makes it possible to eliminate the time restrictions and provides greater capacity for experiments. Experts consider Kopernikus to be a replacement in some respects for the useless TV-Sat 1. This puts to rest a view that was vehemently argued for years: that broadcasting should be done via high-powered (230 watts) broadcasting satellites, while telecommunications satellites should be used for telecommunications. Technical improvements in earth stations make it possible for television and radio transmissions to be received by individuals with relatively small parabolic antennas even if they are emitted by low-powered (20-54 watts) telecommunications satellites. Like the Astra telecommunications satellite that went into operation for Luxembourg's SES firm in November of last year, Kopernikus (45-54 watts) is a so-called "medium power satellite."

In contrast to Astra, which covers Europe, Kopernikus is directed at Germany. Obviously, then, the Bundespost intends to attract possible television broadcasters away

from Astra to Kopernikus. This fits with the fact that broadcasters will not pay a specific fee for the use of a channel on the new satellite. Instead, the Bundespost will charge DM10.3 million annually for the use of a transponder to transmit to the satellite, for the use of the channel, for transmission down, and for the use of the earth stations and the distribution via broadband cable networks—regardless of what satellite the Bundespost uses for this service. For this reason there is still no information as to the cost of renting a transponder on Kopernikus for telecommunications services, such as transmitting newspaper pages from one place to another. According to the Bundespost, these costs will not be relevant until the second Kopernikus class satellite is launched. The sister of the Kopernikus just launched is scheduled to be launched in November. Only then will it really be possible to calculate the costs of the Bundespost's satellite adventure: The DM815 million for the Kopernikus satellite project includes the second satellite, a third, reserve satellite, and the earth stations, and takes into account the satellites' operational life, an average of 10 years. The Intelsat and Eutelsat telecommunications satellites which transmit the 18 channels received in West Germany will go out of operation in a few years.

FINLAND

NMT Mobile Phone Test Area to Expand
55002464b Helsinki HELSINGIN SANOMAT in
Finnish 20 May 89 p 14

[Article: "NMT Operational Area Extended to Switzerland"]

[Text] Experimental communication via the 900-mobile-phone NMT [not further identified] between Finland and Switzerland was initiated on Friday. The first test users were Finnish mobile phone experts who are familiarizing themselves with the Swiss telecommunications situation.

During the test operation experiences with viability and quality of service will be accumulated. Up to now, the Nordic countries have constituted the only area in the world where it has been possible for telephones to "wander" across borders.

The caller will be charged the regular NMT rate for a phone call between Finland and Switzerland, but the recipient will have to pay part of the total amount. Negotiations on the exact payment methods are still in progress.

There are 24,000 NMT users in Finland and 40,000 in Switzerland.

Government, Industry Developing Data Network

IBCN System

55002464a Helsinki HELSINGIN SANOMAT
in Finnish 31 May 89 p 16

[Article: "Communications Industry Making Joint Studies of Broadband Networks; Technology Development Center Funding 40-Million- Markka Project"]

[Text] Finnish companies and communities operating in the communications field are launching a 5-year development project that will cost about 40 million markkas and which is aimed at development of a so-called broadband communications network.

The father and chief developer of the project is VTT [State Technical Research Center]. Also participating are the Post and Telecommunications Office, the Helsinki Telephone Company, the Telephone Company Federation, Lohja Finlux, Nokia, and Teleste [not further identified]. The Technology Development Center, TEKES, is funding the project.

Picture, Electronic Mail, and TV in Same Network

According to experts, a so-called IBCN [integrated broadband communications network] will be the basic solution for the European communications system beginning with the second half of the next decade. This kind of network will be utilized by the much-talked-of high-density television, HDTV, among other systems, but IBCN affords the possibility of much more extensive communications solutions as well.

With it, in addition to HDTV, we will be able to use picture phones, electronic mail, and buying and bank services, among other things, and operative connections will be created from home computer terminals to various databases.

In Finland Lohja, at least, is particularly interested in these. It is participating in two research projects that are part of the European Community (EC) Race Program.

Furthermore, Lohja's Finlux unit has begun its own exceptionally large product development project, the MST-2000, at the company level. A multiservice television set utilizing the IBCN network is being developed in the framework of the MST-2000. Finlux's experience as a manufacturer of television sets, on the one hand, and flat-screen monitors based on electroluminescence, on the other, are beingharnessed for the development operation.

The VTT research project will be set in motion in all earnest next year.

Researchers are particularly interested in this technology by means of which we are moving from the present age of copper wires to the era of broadband network light cables.

Into High Gear Next Year

The goal is to create the basic know-how for broadband networks, not so much to produce commercially manufactured products in this field.

This being the case, the project is being loosely organized. The purpose is not to establish the same kinds of companies in the context of which Nokia, the Post and Telecommunications Office, and the Finnish Broadcasting Corporation are about to develop the technology required for HDTV.

Five-Part Research Project

This kind of company, the Radio and TV Technical Research Company (RTT), was founded in the spring. After considerable disagreement, both Lohja and Teleste were excluded.

The broadband project conducted by VTT is divided into five parts. The most important of them will involve a study of so-called areal networks that will link house systems. In connection with the project, they also plan to build an experimental network in Otaniemi.

The IBCN study was set in motion after tough negotiations. Both the industry and telephone network operators are used to very short amortization periods for their investments. The IBCN network will not develop as commercial products before about the turn of the century and we are not used to such long-drawn-out research projects.

Lohja on Two Race Projects

Many members of the VTT research team are participating in EC Race projects that are specifically based on utilization of the IBCN network. The EC plans to invest over 6 billion Finnish markkas in these development projects over a period of 5 years.

Lohja Finlux is the director of a Race group that is developing a monitor based on electroluminescence. The company is trying to commercially exploit the knowledge acquired in the course of this very project with its MST-2000 development project.

In addition, Finlux is participating in a group directed by British Telecom. They are striving for the same goal as the Finnish team directed by VTT, the development of an experimental broadband network.

The Nokia, Finnish Broadcasting Corporation, and Post and Telecommunications Office development company is studying a broadband network application area, that

is, HDTV technology. The project is expected to take 5 years and will cost 170 million markkas. So far, at least, Lohja is not participating in the project because it is not in keeping with the company's development strategies.

Leftist Critical

55002464a Helsinki HELSINGIN SANOMAT
in Finnish 31 May 89 p 21

[Article by Timo Pauku: "Citizen in Webs of Information Network; a Monitor in Every Home Will Be an Instrument of Business—or Opposition—in the 1990's"; first paragraph is HELSINGIN SANOMAT introduction]

[Text] The Post and Telecommunications Office is developing an information network, TeleSampo [Magic Telecommunications Mill], for the entire nation and wants to bring the computer within reach of everyone. At the same time leftist humanist Mikael Book squeezes civic organizations and the intelligentsia into the nets of the information network. Book maintains that people may become wiser in an information society based on information networks.

Just a few years ago only foreign currency dealers or night owl microelectronics hobbyists were thoroughly familiar with video display terminal information networks. Microelectronics fans and hackers established the first amateur information networks, or "boxes," in Finland in September 1982.

Primarily electronic mail systems, information networks are now rapidly becoming common in workplaces. Home computer terminals in Finland also now have access to about 150 different noncommercial electronic bulletin boards via telephone lines. So networking is no longer a BITTI or TIETOKONE monopoly.

Open information networks like "Casino Opus," "Bad Sector," "Kerberos," "Datafobi," and "Tepnet" are used to discuss information networks themselves, computers, science fiction, money, and peace—sometimes even sex.

Networks to Be Launched in Fall 1990

Very little business other than foreign exchange transactions is as yet conducted via computer terminal, but the webs are expanding.

The networks will be launched all over Finland in September 1990. About 2.5 million telephone numbers will at that time be entered in an electronic telephone directory.

The Post and Telecommunications Office is starting to market the directory to home computer users. In addition, it is selling an enlarged terminal telephone that has been dubbed a computer.

Telephones and the mail will thus be supplemented by electronic links with computers. The computer will probably spread to homes as did radio and television in their time. In 10 years we may not be able to use the telephone conveniently without a connection with the national information network.

An enthusiast might now actually claim that the term "information society," which has been downgraded in conversation, is finally materializing.

Anyway, the word computer [tiedin] is derived from the word "tieto" [information, knowledge]. Many of us may anticipate a good haul from its net.

David and Goliath of Information Networks

It will pay for a citizen to familiarize himself with the fishing tackle if he wants to fish for information in an up-to-date way in the 1990's. To help him find his way into the networks, he can buy two new books that were published in March.

"The Public Network and the Citizen's Information Station" was published as a preliminary study in the Communications Ministry publication series. It was put together by those organizations that carried out projects bearing their names: information technology companies, the state, telephone companies, banks, and the Post and Telecommunications Office with its numerous support organizations.

Swedish-language Finn and civil activist Mikael Book has challenged the big production. This spring he published the book "Natbyggaren." On Friday it will appear in Finnish under the title "The Netmaker: a Book on a Modern Postal System." The Telecommunications Department of the Post and Telecommunications Office is publishing the Finnish version.

The political "Preliminary Study" excites the reader. The work claims and anticipates that a million Finns will be using an easy and open information network on the threshold of the coming millennium.

"Preliminary Study" presents a 17-page list of possible computer services. In that real information society there is room for all the information and commercial transactions in the world on one's living room monitor.

One could get weather reports, [order] medicines, train tickets from the screen of the computer, which would cost about 1,500 markkas; through the terminals one would have access to the stock exchange, the horse-racing results, dictionaries, calorie charts, scholarships, and local schedules—anything at all.

Poets or bemoaners of public actions would not be forgotten on home screens. Business transactions and information searches would cost perhaps 200 markkas a month.

Judging from the exhaustive list in "Preliminary Study," one would say that citizen Book was compulsively hunting for users for the new device.

All Sorts of Information Networks

According to Book, we should tackle the networks with more determination than just pondering whether one can order train tickets to one's home by tapping out an order on the keyboard. The information networks should be tossed into the sea of the world's boundless knowledge. So, along with "Preliminary Study," Book offers an 11-page list of what are, in his opinion, the world's most important information networks.

The networks listed by Book do not operate commercially. The information they provide supposedly improves a bad world.

Citizen Book himself began his trip to the world's information networks and banks in 1987. The Post and Telecommunications Office had commissioned a book from him on information networks for the purpose of educating adults about them.

Before Book keyed himself into the networks with the call sign "log in," he asked himself two questions: "O.K. With this gadget I can send messages to any place in the world. But what do I say?"

And secondly: "How will the conversation go? Will I make a single friend anywhere through the computer terminal?"

Friend Who Composes Poetry Found in Oregon

Book found something to say in the data networks. He exchanged wholesale lots of reports and articles from Moscow to Seattle. He visited for hours on end in data networks like Econet, Greenet, or Peacenet.

As the prefixes to the "nets" tell us, they do not market goods, but values, peace, demonstrations, boycotts, opposition to war—on a worldwide basis.

Amnesty International, for example, has, with the aid of the Urgent Action data network, urged world leaders to exercise supranational compassion. The network helps when a pressure campaign implemented through the mail is racing against the death sentence.

About 3,000 organizations and citizens use the world's biggest noncommercial, alternative networks.

Networks like Greenet are barely older than 3 years. It was not until the second half of the 1980's that the world's civil activists of the same mind have been finding one another easily. Communication is effected instantaneously, regardless of distance—at a cost of 40 markkas an hour.

According to Book, even within our borders Greenet is a much better and cheaper channel for conversation than the Post and Telecommunications Office's TeleSampo. The Post and Telecommunications Office plans to turn TeleSampo into our main computer network, which would incorporate choices of hundreds of services in the 1990's.

So Book found something to say and a friend too. The communication lines of the Greenet data network warmed up with Oregon peace activist Janet Wasko.

At the same time Book realized that the book would not be in the form of just any old textbook. He also wanted to give vent to a discussion of his "Netmaker's" connection between man and machine.

This is why Book pondered for a long time what he really would say. Right from the start of his book he skillfully tests the origins of the words "data" and "information."

"Preliminary Study" does not really properly weigh these key terms at all.

Workers Resistance Through Terminals

Book hesitantly dares to claim that people *may become wiser* in an information society based on information networks.

"Netmaker's" leftist humanist squeezes civic organizations and the intelligentsia into the nets of the information network.

Book hopes that the international worker movement will also find contact through computer terminals since capitalism has done so. If Europe integrates, its information networks will also integrate. Why should not workers establish their own information networks, from Ireland to Greece and from Finland to Portugal?

But what will a seamstress from Seppala in Finland have to say to a seamstress from Valvilla in Portugal? "Don't produce cheap goods for our market!"

Book compulsively tried to find Finnish trade-union officials who would be using information networks this soon. One union local was found in Kuopio through the computer terminal, only one.

Not even news media employees, who work with computer terminals, have yet organized through terminals. Solidarity based on bits will have to wait for a while since, according to Book, the computer is in itself a device created to meet the needs of money and war, not opposition.

Book doubts that telecommunications networks will be created before the banks and industry need them. Aside from this, Matti Virtanen will also have access to the networks if he can think of something to buy and sometimes of something to say.

Post Office Returns to Modern Times

Surprisingly, Book speaks of the Post Office's return to electronic mail, suited to modern times.

Quite right: that is, [he is speaking] of *postmodern times*.

Information networks pressure the user to write and read. They challenge his intelligence. One should expand one's knowledge with the computer terminal, not read lotto number.

According to Book, it is easy to tap out words to the network that one would not use on the phone or face to face. Conversations are of long duration and messages survive for weeks, even years, across seas and continents.

Information networks may even trigger a writing renaissance. Book himself initiated a poetry column in Greenet with his friend in Oregon.

Book recalled how language philosopher Ludvig Wittgenstein wrote his papers. He unburdened himself of his ideas on paper slips and plain postcards without pictures which he sent to his friends for comment.

The texts were written on the philosopher's slips in extremely concentrated form, almost aphorisms.

On the other hand, a short communication can also do violence to language. Young people's electronic mail includes terms on their screens like *tags* on the sides of railcars. One distinguishes with difficulty Finnish words behind the slang.

Ability to Compete Will Improve, Will Services Improve?

The information network should improve the exchange of messages throughout the country. The distribution of goods will be improved, work stoppages and [the exchange of] information will be reduced—our ability to compete will improve and services will improve.

Even administration will be simplified. Their own information network has already been set up between the provincial governments.

"Preliminary Study" humbly concedes that the computer will scarcely provide strong support for local policy. Nevertheless, when "Preliminary Study" was completed, Communications Minister Pekka Vennamo was so bold as to emphasize that the project would be significant in terms of local policy.

In rural areas computers may be introduced first in libraries and farmhouse living rooms.

"Preliminary Study" is also prepared for generalized direct advertising. If the computer's ability to scroll through material is faulty, direct advertising will even turn into forced feeding. A newspaper reader can, after all, turn the page removing the sausage ads from his field of vision easily, more easily than with a computer.

Computer Not Suited to Entertainment

What Book fears most about the computer is that traces of the users will remain in the networks. Data protection is deceptive since information can very easily be copied and digitalized.

Our names will be listed from, say, an electronic telephone directory for various purposes. Credit information will be available [to unauthorized users]. Links with other networks will ultimately even lead to military-industrial use.

According to those who drafted the preliminary report, the computer is not suitable for entertainment use. The device loses out to even microcomputers built for games in graphics capability. Among the vices too, the computer will at best reach the level of the porno channels and entertainment games.

In France the porno channels are even defended as a means of killing time for single men. Home perverts can in this way even get the feeling that they are participating, if not in a social conversation, at least in a conversation designed to satisfy their needs.

Satellite-Transmitted Telecommunications Network Links Lines

The Post and Telecommunications Office with its support groups is building one of the society-based networks. The information networks may be compared with the network of mail stations built in the 17th century or the telephone line system of the early 20th century.

The preliminary experiment will begin next year with about 2,000 computers. So much money has been invested in it that the project can no longer fail in the search for the right approaches and positions. The services will not at first be specified, but salvation will arrive before the year 2000—from the sky.

All communications will ultimately go back to the acronym ISDN. This worldwide venture will collect the data from all communication networks, all images, voice, and text. Understandably, Finland will be in the vanguard of this undertaking.

We will probably be able to read both "Preliminary Study" and "Netmaker" via information network in the next millenium.

We may burst out laughing at them. After all, they did present electronic communication on paper!

When Book sent an invitation to the newspaper to publish the Swedish- language "Natbyggaren," the letter reached the editorial department by telefax, that is, via the telephone network.

UNITED KINGDOM

Moscow Network, UK's GPT Form Joint Venture
*AN890176 Chichester INTERNATIONAL
TELECOMMUNICATIONS INTELLIGENCE
in English 12 May 89 pp 7-8*

[Article: "COMSTAR—GPT/Moscow Telephone Network Joint Venture"]

[Excerpt] COMSTAR is a new name in European telecommunications created by the recent joint venture agreement at the British-Soviet Trade Fair in Moscow

between Britain's GEC Plessey Telecommunications (GPT) and the Moscow Telephone Network. As a result, Moscow will now have a company providing a range of advanced telecommunications facilities, starting with an international payphone service later this year. GPT payphones will accept both pre-pay and major international credit cards. Initially, 100 will be installed in key locations, such as the international airport, leading hotels and popular city center sites.

The Moscow Telephone Network was formed in August 1882, only a few years after Alexander Graham Bell invented the telephone. It operates a complex network consisting of switching equipment, transmission systems and line plant. It supports 3.3 million telephone lines. Moscow is fifth in world ranking of telephone networks. The network is served by 18,000 employees having 160 different disciplines. Today 88 apartments out of each 100 are equipped with telephones and 34,000 payphones are located throughout Moscow. [passage omitted]

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